



UNITED STATES PATENT AND TRADEMARK OFFICE

AM
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/098,616	03/18/2002	Satoru Tanaka	PU01-01169	3680
21254	7590	04/20/2004	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			PRITCHETT, JOSHUA L	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/098,616

Applicant(s)

TANAKA ET AL.

Examiner

Joshua L Pritchett

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 17-26, 28 and 31-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-26, 28 and 31-38 is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to Amendment filed January 26, 2004. Claims 1, 2, 6 and 26 have been amended as requested by the examiner.

Drawings

The drawings were received on January 26, 2004. These drawings are accepted.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito (US 6,320,683).

Regarding claim 1, Ito discloses a hologram recording medium made of a photo refractive crystal of a uniaxial crystal (col. 5 lines 5-7) in a shape of a parallel flat plate (10, Fig.

Art Unit: 2872

2) and has a plurality of areas of a refractive index grating corresponding to one portion of a three dimensional light interference pattern of a coherent signal light beam and coherent reference light of a first wavelength modulated in accordance with information data (Fig. 4), wherein each of the areas of the refractive index has a columnar shape and the areas of the refractive index grating (Fig. 1) are adjacently arranged in parallel with each other (Fig. 4).

Regarding claim 2, Ito discloses wherein the photo refractive crystal is a crystal having a recording sensitivity at the first wavelength that is increased when a gate light beam of a second wavelength is simultaneously irradiated in addition to the reference light and the signal light of the first wavelength (col. 5 lines 30-34).

Regarding claims 3, Ito discloses wherein the photo refractive crystal has an optical crystal axis approximately parallel or perpendicular to a main surface of the recording medium (col. 3 lines 60-61).

Regarding claim 4, Ito discloses wherein information data of one screen is stored in areas of the refractive index grating (col. 4 lines 51-63).

Regarding claim 5, Ito discloses wherein each of the areas of the refractive index grating of the columnar shape extends approximately perpendicularly to the main surface of the hologram recording medium (Fig. 4; col. 5 lines 7-8).

Regarding claim 6, Ito discloses wherein each of the areas of the refractive index grating of the columnar shape approximately has a cylindrical shape (Fig. 4).

Claim Rejections - 35 USC § 103

Art Unit: 2872

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Tanaka (US 6,301,028).

Ito teaches the invention as claimed but lacks reference to the diameter of the zeroth-order and primary diffracted lights. Tanaka teaches wherein a maximum inside diameter of the areas of the refractive index grating is smaller than the distance between peaks of zeroth-order and primary diffracted lights of a light intensity distribution of the signal light beam (col. 8 lines 20-27; Fig. 4). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Ito invention include the refractive index grating size as taught by Tanaka for the purpose of concentrating the information near the zeroth-order signal.

Response to Arguments

Applicant's arguments, see Amendment, filed January 26, 2004, with respect to claim 26 have been fully considered and are persuasive. The rejection of claim 26 has been withdrawn.

Applicant's arguments, see Amendment, filed January 26, 2004, with respect to the drawings have been fully considered and are persuasive. The objection to the drawings has been withdrawn.

Applicant's arguments filed January 26, 2004 have been fully considered but they are not persuasive.

On pages 10 and 11 of Amendment, applicant argues that the Ito reference fails to teach the claimed columnar shape of claim 1. Based on the teachings of the current application, specifically Fig. 2 of the current application, columnar shape is defined as a quadrilateral. The shape is formed by the intersection of recording light beams. Fig. 1 of Ito shows a columnar shape refractive index grating.

On pages 12 and 13 of Amendment, applicant argues that the combination of Ito and Tanaka is made through impermissible hindsight. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). One of ordinary skill in the art would readily recognize the benefits of the higher recording density afforded by the teachings of Tanaka and seek to apply such teachings to the Ito invention in order to store more information in the photorefractive crystal.

Allowable Subject Matter

Claims 17-26, 28 and 31-38 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 26, the prior art of record fails to teach or suggest a hologram recording medium with a converged recording reference light beam and a phase conjugate wave.

Regarding claims 17, 32 and 36, the prior art of record fails to teach or suggest a gate light beam perpendicularly incident to the recording medium together with the recording reference beam. The prior art does teach the gate light beam perpendicularly incident the recording medium, but does not teach a relationship with the reference light beam that could be termed as "together." The broadest reasonable interpretation of the term "together" used in the context of the claim; in the opinion of the examiner means that the two beams (gate and reference) are incident the same surface of the recording medium.

The remaining claims depend from claims 17, 26, 32 and 38 and are allowable for the same reasons.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLP



DREW A. DUNN
SUPERVISORY PATENT EXAMINER